

40. (NEW) . The method of Claim 22, wherein said modulated baseband signal is an analog signal.


41. (NEW) The method of Claim 22, wherein said modulated baseband signal is a digital signal.

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**REMARKS**

This Preliminary Amendment is being filed prior to the receipt of an Office Action for the above-identified patent application Serial No. 09/925,566. Entry of the amendments set forth in this Preliminary Amendment is respectfully requested. Claims 1, 8, 9, 13, 15, 17, 19-22, and 24 have been amended. New Claims 25-41 have been submitted. Support for the foregoing amendments can be found throughout the specification, claims, and drawings in the application as originally filed. Applicant respectfully submits that no new matter is entered herein by this preliminary amendment. Entry of the amendments set forth in this Preliminary Amendment is respectfully requested. Attached hereto is a marked-up version of the changes made to the specification by this amendment. The attached pages are captioned "**Version with markings to show changes made.**"

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

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**IN THE SPECIFICATION:**

Paragraph beginning at page 8, line 13, has been amended as follows:

5           Fig. 3 is a schematic illustration of a detachable wireless RF modem 300 in accordance with a preferred embodiment of the present invention, wherein RF modem [100] 300 comprises an Antenna 310, an RF head, and an RF to Baseband Interface 375. The RF head comprises RF switch or duplexer 360, Dual Conversion Transceiver 350, High Speed Synthesizer 380, Power Amplifier 315, and Filters 320, and performs RF conversion. RF modem 300 can be constructed  
10 using standard components. For instance: Dual Conversion Transceiver 350 and High Speed Synthesizer 380 are available from Texas Instruments of Dallas, Texas; and RF to Baseband Interface 375 can be any standard interface that enables RF modem 300 to be inserted in a conventional way into an available slot in the host computing device, *i.e.*, Interface 375 enables RF modem 300 to be dimensioned to fit within a cradle for a PDA or enables RF modem 300 to  
15 be dimensioned to correspond to a PCMCIA personal computer card. Thus, RF modem 300 can be designed to be housed inside the host computing device or it can be connected external to the host computing device. Moreover, the above components of RF modem 300 are electrically connected as illustrated by the solid lines in Fig. 3 between those components.

20 Paragraph beginning at page 9, line 18, has been amended as follows:

          Fig. 4 is a schematic illustration of a host computer 400 designed to work in conjunction with wireless RF modem 300 of Fig. 3. Host computer 400 contains a Power Source 440, a Memory 420, of type ROM, RAM, SRAM, Flash, or some combination of memory types, accessible to CPU 430. Computer system I/O circuitry 460 is shown connecting CPU 430 to a  
25 clock 490, to an Analog Baseband [and] & Codec 425 and to [a power source] the Power Source 440. Analog Baseband [and] & Codec 425 performs baseband processing and protocol stack control and is available, for instance, from Analog Devices of Norwood, MA. Data is sent or received through Baseband to RF interface 475 to the RF to Baseband connector 375 in RF modem 300. The above components of host computer 400 are electrically connected as  
30 illustrated by the solid lines in Fig. 4 between those components.

**IN THE CLAIMS:**

Claims 1, 8, 9, 13, 15, 17, 19-22, and 24 have been amended as follows:

1. (amended) A [detachable] wireless radio frequency (RF) modem constructed to cooperatively operate with a host computing device having a memory, a central processing unit ("CPU") for executing a protocol stack software program stored in said memory, and a baseband processing unit, said RF modem comprising:

an antenna;

an RF head coupled to said antenna and configured during a receive mode to receive an electromagnetic RF signal through said antenna and to convert said RF signal into a modulated baseband [analog] signal for baseband processing in said host computing device, said RF head further configured during a transmit mode to receive a modulated baseband [analog] signal generated by said host computing device and to convert said modulated baseband [analog] signal into an electromagnetic RF signal to feed to said antenna; and

an interface coupled to said RF head and configured to physically couple said RF modem to said host computing device, said interface further configured during said receive mode to feed said modulated baseband [analog] signal generated by said RF head to said host computing device, such that said baseband processing unit is enabled to convert said modulated baseband [analog] signal into a plurality of bits of data including protocol data and true data, and said CPU operating under the control of said protocol stack software program is enabled to separate said protocol data from said true data, said interface further configured during said transmit mode to feed said modulated baseband [analog] signal generated by said host computing device to said RF head.

8. (amended) The RF modem of Claim 7, wherein said RF modem is dimensioned to fit within a cradle for [a] said personal digital assistant.

9. (amended) The RF modem of Claim 1, wherein said host computing [system] device is a laptop computer.

13. (amended) A system for providing wireless data communications comprising:

(a) a [detachable] wireless radio frequency (RF) modem comprising:

(1) an antenna;

(2) an RF head coupled to said antenna, said RF head configured during a receive mode to receive an electromagnetic RF signal through said antenna and to convert said electromagnetic signal into a modulated baseband [analog] signal, said RF head further configured during a transmit mode to receive an externally generated modulated baseband [analog] signal and to convert said modulated baseband [analog] signal into an electromagnetic signal to feed to said antenna; and

(3) an interface coupled to said RF head; and

(b) a host computing device physically coupled to said RF modem via said interface, said host computing device configured during said receive mode to receive said modulated baseband [analog] generated by said RF head through said interface, to convert said modulated baseband [analog] signal into a plurality of bits of data including protocol data and true data, and to separate said protocol data from said true data, said host computing device further configured during said transmit mode to generate said modulated baseband [analog] signal for feeding to said RF head through said interface.

15. (amended) A [detachable] wireless radio frequency (RF) modem constructed to cooperatively operate with a host computing device having a memory and a central processing unit ("CPU") for executing a protocol stack software program stored in said memory, said RF modem comprising:

an antenna;

an RF head coupled to said antenna, said RF head configured during a receive mode to receive an electromagnetic RF signal through said antenna and to convert said electromagnetic signal into a modulated baseband [analog] signal, said RF head further configured during a transmit mode to receive said modulated baseband [analog] signal and to convert said modulated baseband [analog] signal into said electromagnetic signal to feed to said antenna;

a baseband processing unit coupled to said RF head, said baseband processing unit configured during said receive mode to convert said modulated baseband [analog] signal into a plurality of bits of data including protocol data and true data, such that said CPU operating

under the control of said protocol stack software program is enabled to separate said protocol data from said true data, said baseband processing unit further configured during said transmit mode to convert said plurality of bits of data including said protocol data and said true data into said modulated baseband [analog] signal; and

5 an interface coupled to said baseband processing unit and configured to physically couple said RF modem to said host computing device.

17. (amended) A system for providing wireless data communications comprising:

(a) a [detachable] wireless radio frequency (RF) modem comprising:

10 (1) an antenna;  
(2) an RF head coupled to said antenna, said RF head configured during a receive mode to receive an electromagnetic RF signal through said antenna and to convert said electromagnetic signal into a modulated baseband [analog] signal, said RF head further configured during a transmit mode to receive said modulated baseband [analog] signal  
15 and to convert said modulated baseband [analog] signal into said electromagnetic signal to feed to said antenna;

(3) a baseband processing unit coupled to said RF head, said baseband processing unit configured during said receive mode to convert said modulated baseband [analog] signal into a plurality of bits of data including protocol data and true data, said baseband  
20 processing unit further configured during said transmit mode to convert said plurality of bits of data including said protocol data and said true data into said modulated baseband [analog] signal; and

(4) an interface coupled to said baseband processing unit; and

(b) a host computing device physically coupled to said RF modem via said  
25 interface, said host computing device configured during said receive mode to separate said protocol data from said true data, said host computing device further configured during said transmit mode to combine said protocol data with said true data.

19. (amended) A [detachable] wireless radio frequency (RF) modem having at  
30 least one predetermined operating characteristic and constructed to cooperatively operate with a host computing device, said host computing device having a memory, a central processing unit

("CPU") for executing a protocol stack software program stored in said memory, and a baseband processing unit, said RF modem comprising:

an antenna;

an RF head configured during a receive mode to receive an electromagnetic RF signal through said antenna coupled to said RF head and to convert said electromagnetic signal into a modulated baseband [analog] signal for baseband processing in said host computing device, said RF head further configured during a transmit mode to receive a modulated baseband [analog] signal generated by said host computing device and to convert said modulated baseband [analog] signal into an electromagnetic signal to feed to said antenna;

an interface coupled to said RF head and configured to physically couple said RF modem to said host computing device, said interface further configured during said receive mode to feed said modulated baseband [analog] signal generated by said RF head to said host computing device, such that said baseband processing unit is enabled to convert said modulated baseband [analog] signal into a plurality of bits of data including protocol data and true data, and said CPU operating under the control of said protocol stack software program is enabled to separate said protocol data from said true data, said interface further configured during said transmit mode to feed said modulated baseband [analog] signal generated by said host computing device to said RF head; and

an RF identification unit ("RFID") coupled between said RF head and said interface, said RFID operative to generate an identification signal that identifies said at least one operating characteristic of said RF head, said interface configured to feed said identification signal to said host computing device such that said host computing device is enabled to detect said identification signal and decode said at least one operating characteristic.

20. (amended) A [detachable] wireless radio frequency (RF) modem having at least one predetermined operating characteristic and constructed to cooperatively operate with a host computing device having a memory and a central processing unit ("CPU") for executing a protocol stack software program stored in said memory, said RF modem comprising:

an antenna;

an RF head coupled to said antenna, said RF head configured during a receive mode to receive an electromagnetic RF signal through said antenna and to convert said

electromagnetic signal into a modulated baseband [analog] signal, said RF head further configured during a transmit mode to receive said modulated baseband [analog] signal and to convert said modulated baseband [analog] signal into said electromagnetic signal to feed to said antenna;

5                   a baseband processing unit coupled to said RF head, said baseband processing unit configured during said receive mode to convert said modulated baseband [analog] signal into a plurality of bits of data including protocol data and true data, such that said CPU operating under the control of said protocol stack software program is enabled to separate said protocol data from said true data, said baseband processing unit further configured during said transmit  
10                   mode to convert said plurality of bits of data including said protocol data and said true data into said modulated baseband [analog] signal;

                  an interface coupled to said baseband processing unit and configured to physically couple said RF modem to said host computing device; and

                  an RF identification unit ("RFID") coupled between said RF head and said  
15                   interface, said RFID operative to generate an identification signal that identifies said at least one characteristic of said RF head, said interface configured to feed said identification signal to said host computing device such that said host computing device is enabled to detect said identification signal and decode said at least one operating characteristic.

20                   21. (amended) A method for wireless data communications in a system comprising a [detachable] wireless radio frequency ("RF") modem having an RF head and an interface, said RF modem constructed to cooperatively work with and be physically coupled at said interface to a host computing device, said host computing device having a memory, a central processing unit ("CPU") for executing a protocol stack software program stored in said memory and a baseband  
25                   processing unit, said method comprising:

                  (a)     receiving by said system an RF electromagnetic signal having information to be received, said receiving comprising:

                          (1)     receiving in said RF head said electromagnetic signal;  
                          (2)     converting by said RF head said electromagnetic signal into a  
30                   modulated baseband [analog] signal;

(3) feeding by said RF modem through said interface said modulated baseband [analog] signal into said host computing device;

(4) converting by said baseband processing unit said modulated baseband [analog] signal into a plurality of bits of data including protocol data and true data;

5 (5) separating said protocol data from said true by said CPU operating under the control of said protocol stack software program; and

(b) transmitting by said system an electromagnetic RF signal having information to be sent, said transmitting comprising:

(1) generating by said baseband processing unit a modulated baseband  
10 [analog] signal from said plurality of bits of data including said protocol data and said true data, said plurality of data bits representing said information to be sent;

(2) feeding by said host computer through said interface said modulated baseband [analog] signal into said RF modem;

(3) converting by said RF head said modulated baseband [analog]  
15 signal into said electromagnetic signal having information being sent.

22. (amended) A method for wireless data communications in a system comprising a [detachable] wireless radio frequency ("RF") modem having an RF head, a baseband processing unit and an interface, said RF modem constructed to cooperatively work  
20 with and be physically coupled at said interface to a host computing device, said host computing device having a memory and a central processing unit ("CPU") for executing a protocol stack software program stored in said memory, said method comprising:

(a) receiving by said system an electromagnetic RF signal having information to be received, said receiving comprising:

25 (1) receiving in said RF head said electromagnetic signal;

(2) converting by said RF head said electromagnetic signal into a modulated baseband [analog] signal;

(3) converting by said baseband processing unit said modulated baseband [analog] signal into a plurality of bits of data including protocol data and true data;

30 (4) separating said protocol data from said true data by said CPU operating under the control of said protocol stack software program; and



(b) transmitting by said system an electromagnetic RF signal having information to be sent, said transmitting comprising:

(1) generating by said CPU said plurality of data bits including said protocol data and said true data, said plurality of data bits representing said information to be sent;

(2) generating by said baseband processing unit a modulated baseband [analog] signal from said plurality of bits of data bits including said protocol data and said true data;

(3) converting by said RF head said modulated baseband [analog] signal into said electromagnetic signal having information being sent.

24. (amended) A [detachable] wireless radio frequency (RF) modem constructed to cooperatively operate with a host computing device having a memory, a central processing unit ("CPU") for executing a protocol stack software program stored in said memory, and a baseband processing unit, said RF modem comprising:

an antenna;

an RF head coupled to said antenna and configured during a receive mode to receive an electromagnetic RF signal through said antenna, to convert said RF signal into a modulated baseband analog signal and to perform [digital to analog] analog to digital conversion of said RF signal to enable said host computing device to perform a baseband processing function, said RF head further configured during a transmit mode to receive a digital signal generated by said host computing device and to convert said digital signal into an electromagnetic RF signal to feed to said antenna; and

an interface coupled to said RF head and configured to physically couple said RF modem to said host computing device, said interface further configured during said receive mode to feed said digital signal generated by said RF head to said host computing device, to enable said baseband processing unit to perform said baseband processing function and to enable said CPU operating under the control of said protocol stack software program to separate protocol data from true data, said interface further configured during said transmit mode to feed said digital signal generated by said host computing device to said RF head.